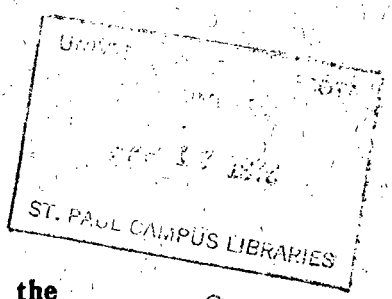
Extension Pamphlet 145 January 1946

A Survey of Minnesota Egg and Poultry Processing and Marketing



Prepared by the
Agricultural Extension Service
and
Division of Agricultural Economics
University of Minnesota
University Farm, St. Paul 8, Minnesota

COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS, UNIVERSITY OF MINNESOTA, AGRICULTURAL EXTENSION DIVISION AND UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING, PAUL E. MILLER, DIRECTOR. PUBLISHED IN FURTHERANCE OF AGRICULTURAL EXTENSION ACTS OF MAY 8 AND JUNE 30, 1914. 3000 1-46

A SURVEY OF MINNESOTA EGG AND POULTRY PROCESSING AND MARKETING

W. H. Dankers*

INTRODUCTION

This survey was made in August 1945, to study developments and trends in the egg and poultry industry during the war period. Personal visits were made to 22 processing and marketing plants in different areas of the state, including 9 local and 13 regional plants. The plants were selected more or less at random so as to get a cross section of the industry. Dealers and processors co-operated well in making records available and in stating their problems. The information was obtained from plant records or from estimates made by plant operators who were most familiar with the particular operation. This information was recorded on special survey blanks and later summarized and analyzed. Comparisons were made between the operations of different operators and plants.

It is apparent from this survey that the Minnesota egg and poultry industry has "just grown," and that present operators have had experience in a variety of other businesses. Of the nine local plants only one started as a produce company. Five started as creameries, and added the buying of eggs, and in some cases poultry, as a supplementary enterprise. One started as a hatchery, one as a packer, and one as a grocery merchant. Of the 13 regional plants only two started strictly as produce companies. Four started as centralizers, two as creameries, three as packers, one as a hatchery, and one as a grocery merchants association.

The poultry industry in Minnesota has been expanded so that 3,705 million eggs were produced in 1944 compared to an annual average production of only 1,599 million eggs during the prewar years of 1935-39. Because a large portion of the poultry meat supply is produced in flocks maintained for egg production, poultry meat production in Minnesota has increased correspondingly. Most of the owners and operators of egg and poultry processing plants made reference to the necessity for plant expansion during the war period. In a number of plants further expansion was already planned.

EGG PROCESSING AND MARKETING

Local Buyers

Of the total supply of eggs purchased by the 9 buyers, 76 per cent were white eggs and the remaining 24 per cent were brown and cream colored. The lowest percentage of white eggs reported by a buyer was 50 per cent, and the highest 95 per cent. Where the percentage of white eggs was reported to be only 50 per cent of the total, brown egg breeds were being specially promoted.

The 9 buyers averaged 260 cases of eggs per week with a range from 100 to 462 cases. When refrigeration facilities are not available the small volume operation makes it difficult and nearly impossible to ship in carlots because the eggs lose quality by the time a car load has been accumulated. Only the largest buyer could ship a car load once a week (based on prewar car loadings). Three creameries had refrigeration facilities and were not so much concerned about deterioration of quality. Several creameries found it possible to combine butter and egg shipments, thereby increasing the frequency of shipment. Most of these plants served as pickup stations for a regional buyer. A few had intentions of expanding their volume up to a point where direct shipment would be economical and practical.

* Dr. H. J. Sloan, Chief of the Poultry Section, T. H. Canfield, Associate Professor in Poultry Husbandry, and Miss Cora Cooke, Extension Specialist in Poultry, actively cooperated in gathering field data and in analyzing and comparing methods of operation.

The method of procuring eggs varied with the type of local buyer. In all cases the creameries used their regular cream trucks and hauled in cream and eggs together. This should give such buyers an advantage in cutting per unit hauling costs. Other local buyers relied almost entirely on door delivery.

The common practice was to procure eggs from the producer about twice a week. One creamery had the cream trucks pick up eggs three times a week. Eggs were shipped out from local buyers one to three times a week, depending on volume, and also on the regional buyer who picked them up or to whom the eggs were shipped.

None of the local buyers were drying eggs and none were breaking and freezing. Six out of the nine were oiling eggs and expressed the opinion that oil processing will continue even when government buying is more limited, or is discontinued.

The main reason for visiting local buyers was to study egg purchase grades. Eight out of nine were buying eggs from producers on a grade basis. Several indicated that "egg grading is here to stay." However, from the variety in the grades used by the eight local buyers, it is quite clear that the industry is in need of more uniform purchase grades. There is also need for more uniform interpretation of grades so that Grade A or Grade B or Grade C means the same thing when it is used by different buyers. The purchase grades that were used are given in Table 1. (See page 3).

It can be observed from Table 1 that all but one buyer (L-H) were buying on "some kind" of a three grade basis. L-H has since changed to a three grade basis. Most impressive is the lack of similarity in buying grades. In large part this is the result of grade specifications laid down by regional or terminal buyers to whom the local buyers in turn sell the eggs. Two buyers, L-A and L-B, set up a special grade for "extra large" or oversized eggs; however, the price paid was not higher than that paid by other local buyers in the area for "large" eggs. The question may well be raised whether local purchase grades should give any encouragement to producers for producing "extra large" eggs. L-A indicated that the internal quality of his special pack "Hennery" was exactly the same as his large "No. 1." The distinction between these two grades, then, is entirely size with only a 2 oz. per dozen weight differential. Again the question may be raised whether such a narrow weight distinction between purchase grades is practical. The use of a variety of terms for what is in effect the same thing can only lead to confusion on the part of producers. In the special pack, what is the difference in the internal quality of a hennery (L-A and a special (L-B)? In the "large" pack what is the difference in the internal quality of a No. 1 (L-B) and U.S. grade A (L-C) and a hennery (L-D)? With regard to size, why should some buyers permit a minimum weight (individual egg) of 22 oz. per dozen (L-F), while others require a minimum of 23 oz. (L-D)? In the two cases where a "medium" grade is used why should one permit a 20 oz. minimum weight and the other require a minimum of 21 oz.? The miscellaneous grade includes the balance of eggs not graded elsewhere. Some buyers (L-B and L-H) include all eggs up to 23 oz. per dozen and larger sized undergrades, while others (L-F) include all eggs up to 20 oz. and larger size undergrades. High quality eggs of medium size 20 to 23 oz. or 20 to 22 oz. per dozen are now placed in the miscellaneous grade by seven out of the nine local buyers. Equitable treatment of producers would seem to favor a "medium" grade, especially in the early part of the egg-laying season. Such a grade seems more significant and practical in a local purchase program than a grade for "extra large" eggs.

Half of the local buyers indicated that they were selling the eggs on the same grade used in purchasing them from producers. Three sold on a larger assortment of grades than were being purchased, and one was selling on only two grades even though he purchased on three. The extent to which more or fewer sales grades were used depended on the market outlet and the quality of eggs.

TABLE I. PURCHASE GRADES OF EGGS AT LOCAL BUYING POINTS

Buyer	Special pack*			Large*			Medium*			Miscellaneous*		
	Min. wt.	Internal quality	Price paid	Min. wt.	Internal quality	Price paid	Min. wt.	Internal quality	Price paid	wt.	Internal quality	Price paid
L-A	24 oz.	Hennery	47¢	22 oz.	No. 1	42¢		No grade		Under 22 oz.	No. 2-Everything	33¢
L-B	24 oz.	Special	46¢	23 oz.	No. 1	43¢		No grade		Under 23 oz.	No. 2-Everything	33¢
L-C		No grade		23 oz. 22 oz.	U.S.-A U.S.-B	47¢ 43¢		No grade		Under 22	Everything	33¢
L-D		No grade		23 oz.	Hennery	45¢	21 oz.	Standard	36¢	Under 21	No. 2-Everything	34¢
L-E		No grade		23 oz. 22 oz.	U.S.-A U.S.-B	46¢ 35¢		No grade		19 to 22 oz. Pullets	U.S.-C	32¢ 25¢
L-F		No grade		22 oz.	U.S.-A	45¢	20 oz.	Standard	35¢	Under 20 oz. Pullets	Everything	32¢ 20¢
L-G	All eggs purchased as current receipts											
L-H		No grade		23 oz.	No. 1	44¢		No grade		Under 23 oz.	Everything	33¢
L-I		No grade		23 oz. 22 oz.	U.S.-A U.S.-B	46¢ 41¢		No grade		Under 22 oz.	U.S.-C	33¢

*Not so labeled by the buyers, but used in this table for comparison.

Regional Buyers

Of the total supply of eggs purchased by 13 buyers, 68 per cent were white eggs and the remaining 32 per cent were brown and cream-colored. The highest percentage of white eggs reported by any buyer was 90 per cent, and the lowest 30 per cent. In the latter case only 5 per cent of the operator's purchases were brown eggs and 65 per cent were cream-colored eggs. This buyer has promoted crossbred chickens that lay cream-colored eggs. There was considerable buyer discrimination against cream-colored eggs before the war. Such discrimination did not prevail during the war years when the supply of eggs was usually too limited for the prevailing demand and when large numbers of eggs were sold to breakers and driers. Dealer opinions varied, but a number of dealers felt that price discrimination against cream-colored eggs might again prevail in the postwar period when eggs will be in heavy supply.

The regional buyers had an average of 13 pickup stations and the number varied from five up to 32. They handled an average of 4,086 cases of eggs per week, more than 15 times as many as were handled by the local buyers referred to earlier. The volume per dealer varied greatly, from a low of 850 cases per week up to about 14,000 cases per week. Large volume is especially necessary where drying equipment has been installed, and also helps greatly in holding per unit costs low in egg-breaking operations.

No special pattern was followed in procuring the eggs. Although they operated as regional buyers, all received eggs directly from farmers at central headquarters. In practically all instances such eggs were delivered at the door by the producer. A large proportion of the eggs purchased by or for regional plants at outlying stations was also delivered at the door by the producers. Most regional buyers had company trucks pick up the eggs from stations three times per week. A few buyers had them picked up twice a week. Several buyers had farm truck routes out from the pickup or receiving station and felt that such truck routes were an aid in obtaining high quality eggs. There is some indication that more regional buyers may shift their operations to more "direct from farm" pickup in a more limited area around the central plant, as a means of obtaining quality eggs in larger volume. One buyer definitely felt that a quality egg program depends on door delivery. Large volume makes it possible for most of these operators to ship out carlots of eggs daily. Those shipping out less frequently shipped at least two times per week.

Eleven out of 13 regional buyers had adequate refrigeration facilities at the central plant. One of the other two moved his eggs out daily to one of his own plants where refrigeration facilities were provided. One buyer had refrigeration facilities at the five larger receiving stations in addition to facilities at headquarters. Most of the buyers had no cooling facilities at pickup stations. This is one of the real problems in this method of buying and selling eggs. With an average pickup from farms of twice a week at local receiving points, and an average pickup from there of three times a week, a substantial proportion of the eggs is more than a week old before they are properly cooled. In hot weather the quality of such eggs has already been greatly reduced by this method of handling. One buyer stated that only a few of the eggs arriving at the central plant were of better than U.S.-B quality. Several other buyers made reference to this problem but indicated that during the war period many such eggs had been "graded up." One buyer is considering refrigeration facilities at pickup stations. Another buyer is seriously considering the expansion of direct-truck routes around the central plant, and in this way replacing the supply of eggs now being obtained from local receiving stations. With present circumstances, both local buyers without refrigeration facilities, who ship direct to terminal markets, and regional buyers encounter a quality problem. The local buyers do not accumulate carlots fast enough and the regional buyers have similar delay before the eggs arrive where there are cooling facilities. In both cases there is a loss of quality. This problem needs further attention.

All of the regional buyers were buying eggs on grade. The grades used by the 13 regional buyers are given in Table 2. (See page 6.)

It can be observed from Table 2 that 10 out of the 13 regional buyers were buying on "some kind" of a three-grade basis at their central plant and at some of the buying stations. Three were buying on a two-grade basis. Because all of the regional buyers received or picked up eggs locally, and because the same grades prevailed at some local receiving points, they are in the main local purchase grades. Like the buying grades that are in effect with the local buyers already referred to, there was little uniformity in the grades used by the regional buyers. Five out of 13 buyers set up a special grade for "extra large" or oversized eggs. It will be observed that some required a minimum weight (individual egg) of 25 oz. per dozen, while others allowed a minimum of 24 oz. The requirements for internal quality are also difficult to compare. How similar is a U.S.-AA (R-L) to a Special (R-K) or A-Extra Quality (R-I) (dealer's own grade)? Or, how similar is a U. S.-A (R-C) to an A-Extra Quality? Again, in the "large" pack what is the difference in the internal quality of a "hennery" (R-A) and "U.S.-A" (R-C) and "good" (R-G) and "No. 1" (R-J) and "extra" (R-M)? With regard to size why should some buyers permit a minimum weight (individual egg) of 22 oz. per dozen, while others require a minimum of 23 oz. for what is apparently considered to be a "large" pack of eggs? Where a definite distinction is made in internal quality such as U.S.-A and U.S.-B (R-D and R-L) why should the weight requirement be less in the B quality pack than in the A quality pack? Only six out of 13 buyers put up a "medium" pack. One buyer (R-A) required a minimum weight of 21 oz. while the rest required only 20 oz. Internal quality requirements were No. 1, Standard, and U.S.-B. Because of the variation in other grades the weight of eggs placed in the miscellaneous grade varied from eggs weighing under 20 oz. to eggs weighing under 23 oz. per dozen, plus those of larger size but of lower internal quality. It has been suggested by some buyers that the market outlet in part suggests the grades that should be used for purchasing eggs. It is interesting to note from this survey that a number of the regional buyers had the same market outlet yet used distinctly different purchase grades. It would be very helpful to the industry, and it should be possible and practical for both local and regional buyers, to adopt more uniform standards and grades of eggs.

Only two of the 13 regional buyers operated drying plants. The general opinion was that egg drying was pretty largely a wartime enterprise and that it will be largely or wholly discontinued in the postwar period. Neither of the two plants was operating at the time of the survey.

Six out of 13 were breaking and freezing eggs and several others plan to start such operations. It was the general opinion that this phase of the egg industry will continue after government buying ceases. Most breakers are breaking "checks," "washed dirties," eggs with shell irregularities, and in some cases eggs of lower internal quality. A large volume of surplus shell eggs from Minnesota moves to consumer markets in Chicago and the East. The egg-breaking enterprise nicely supplements such a shell egg program.

Twelve out of 13 buyers were oiling eggs to prevent loss in quality. Practically all of the buyers believe that oil processing is here to stay even when eggs are again moved largely into civilian consumption channels.

All of the dealers were using some fiber egg cases. Sturdy fiber cases appeared to be satisfactory for moving eggs into domestic channels; however, it was suggested that they should be more uniform in both size and construction. Most dealers felt that fiber cases would be used in the postwar period. Eggs sold to the government for foreign shipment were packed in wooden cases.

Local Buyers

Chickens - Seven out of nine local buyers of eggs also bought poultry. They operated as pick-up stations for a regional buyer, had no facilities for dressing, and sold live poultry. Although a small proportion was picked up by local dealer trucks, the major portion of the supply was delivered at the door by the producer. The local buyer in turn moved it out as soon as possible to avoid loss from shrinkage. Several indicated that their poultry was picked up three times a week by a regional buyer.

TABLE 2. PURCHASE GRADES OF EGGS AT REGIONAL BUYING POINTS

Buyer	Special Pack*			Large*			Medium*			Miscellaneous*		
	Min. wt.	Internal quality	Price paid	Min. wt.	Internal quality	Price paid	Min. wt.	Internal quality	Price paid	wt.	Internal quality	Price paid
R-A		No grade		23 oz.	Hennery		21 oz.	No. 1		Under 21 oz.	No. 2	
R-B	25 oz.		42¢	23 oz.		37¢		No grade		Under 23 oz.	Under-grades	34¢
R-C	24 oz.	U.S.-A	47¢	23 oz.	U.S.-A	43¢		No grade		Under 23 oz.	No. 2	32¢
R-D		No grade		23 oz.	U.S.-A	46¢		No grade		Under 22 pullets	U.S.-C	32¢
				22 oz.	U.S.-B	35¢						25¢
R-E		No grade		23 oz.	U.S.-A	44¢	Mediums		36¢		Under-grades	32¢ (1)
R-F		No grade		22 oz.	U.S.-B	42¢		No grade		Under 22 pullets	No. 2	31¢
												24¢ (2)
R-G		No grade		22 oz.	Good	43¢		No grade		Under 22 pullets	No. 2	31¢
												24¢ (3)
R-H		No grade		22 oz.	No. 1 (U.S.-A & U.S.-B)	44¢		No grade		Under 22 oz.	No. 2	31¢
R-I	24 oz.	A-Extra quality	46¢	22 oz.	U.S.-B	41¢		No grade		Under 22 pullets	C	33¢
												25¢
R-J		No grade		22 oz.	No. 1	46¢	20 oz.	Standard	37¢	Under 20	No. 2	34¢ (4)
R-K	25 oz.	Special	47¢	22 oz.	Extra	44¢	20 oz.	U.S.-B	36¢	Under 20	U.S.-C	30¢
R-L	24 oz.	U.S.-AA	48¢	23 oz.	U.S.-A	45¢						
				22 oz.	U.S.-B	40¢	20 oz.		35¢	Under 20	Under-grades	
R-M		No grade		23 oz.	Extra		20 oz.	No. 1		Under 20	No. 2	

(1) Nine stations buy on only two grades and two stations buy current receipts.
(2) Buy current receipts at 12 stations.
(3) Buy Current receipts at 25 stations.
(4) Also buy current receipts.

*Not so labeled by the buyers, but used in this table for comparison.

The volume of poultry handled by local buyers averaged only about 250,000 pounds per year, with a range of about 150,000 to 500,000 pounds. No chickens were bought on grade. Hens were bought as heavy or light hens with a price differential of 2 cents per pound. In practically all cases spring chickens were bought at the same price, whether heavy or light. It was indicated that the buying of chickens without grading was more prevalent because of war conditions and established price ceilings, and that it is not desirable for the industry, because it does not provide incentive for producers to improve the quality. A problem in buying poultry on grade is the small volume handled by some local buyers, who in many cases do not have sufficient facilities or experience for doing an effective job of grading.

Turkeys - Only three of the local buyers bought turkeys, with a volume of about 200,000 - 250,000 pounds per year. All bought on three grades (government grades) and two sold on those grades. One buyer dressed turkeys during the heavy marketing months in fall.

Regional Buyers

Chickens - Twelve out of 13 regional egg buyers were handling poultry. The average volume of poultry handled per year was over 2½ million pounds and only one buyer handled less than a million pounds. As with eggs, the regional poultry buyers were receiving poultry direct from producers and were serving as local buyers as well as regional buyers. Local poultry was to a large extent delivered at the door by producers. Five dealers sent out special trucks or picked up poultry on egg trucks from producers. Poultry from local pickup stations was picked up by the regional buyer's own truck.

It is doubtful whether much improvement can be expected in the quality of poultry that is produced and sold as long as the present buying system prevails. Although "rejects" were sent back or were killed, nine of the 12 regional buyers bought on the basis of only heavy and light hens and heavy and light "springs," with no further quality differentiation. The three buyers who bought on a simple grade basis bought heavy hens No. 1 and No. 2 and light hens No. 1 and No. 2. One of the three buyers bought springs on the same grade basis. Because there was no price ceiling differential between heavy and light springs at the time, the other two buyers bought No. 1 and No. 2 springs, on the basis of degree of finish and general quality, without reference to size.

All of the 12 regional buyers were dressing poultry. There was considerable variation in methods of operation, sanitary conditions, and general efficiency. Although most employees were paid on a "piece work" basis, a minimum wage rate was in effect in most plants. A low output per worker therefore resulted in a higher cost per bird dressed. Information on daily output was provided by 10 regional operators. This information is presented in Table 3. (See page 8.)

It can be observed from Table 3 that the number of birds dressed per worker per day ranged from a low of slightly over 100 to over 260, with an average very close to 200. The larger plants with more specialization in jobs seemed to have a higher output per worker (D - E - F). However, the results appear to come more largely from desirable arrangement of equipment and good management. Two smaller plants seemed to excel in this respect (B and H) and had a very satisfactory output per worker. Several operators indicated that considerably more Leghorns could be dressed than heavies in the same period of time.

There was a wide variety of opinion on the merits of waxing as part of the dressing operation. Only three out of the 12 plants were waxing at the time of the survey. Most of the rest had done some waxing but had discontinued. One operator preferred waxing because he believed he could do a faster job of picking. This plant dressed more birds per worker per day than most of the rest. A second operator preferred waxing because he believed he could get a better "bloom" on the dressed birds. A third preferred waxing because he believed that it decreases the amount of damage done by mechanical roughers, because mechanical roughers can be used less intensely when the birds are waxed.

TABLE 3. OUTPUT PER WORKER IN DRESSING POULTRY

Association	Number of birds dressed - daily average	Number of workers	Birds dressed per worker - per day
A	1,600	15	107
B	4,500	20	225
C	-	-	200
D	7,500	30	250
E	12,000	50	240
F	16,000	60	267
G	5,500	35	157
H	2,800	12	233
I	6,000	33	182
J	4,800	38	126
Average - all plants	6,744	33	199

One operator indicated that the quality of the wax was so low during the war period that it did not do a good job and for that reason waxing was discontinued. Plants having discontinued waxing permanently gave the following reasons:

1. Too much heat escapes from the waxing operations which makes it uncomfortable for all the workers in the picking room.

2. Mechanical roughers have been sufficiently perfected so that waxing is no longer necessary.

3. The cost of picking a bird is less without waxing, because the investment cost as well as the operating cost of waxing equipment is high.

4. Waxing is "too messy."

In general, waxing seems to be in a downward trend. Those continuing waxing operations were some of the larger plants. Several operators indicated the need for continuous large volume of poultry in order to justify the heavy expenditure in waxing equipment, as well as the effort and expense in heating the wax and getting the operation started. It appears quite obvious that a dealer with small volume can start dressing operations sooner and with a much smaller investment without waxing. Also, much less space is required when waxing is not included in the dressing operation.

Hand roughers were used on a very limited scale. One plant manager suggested that a hand rougher works well as long as the operator is not tired, but that after several hours of operation he begins to "lean on" the machine, resulting in unnecessary roughing of the birds, which frequently puts them in a lower market grade.

The common practice was to use two mechanical roughers. The first roughing is performed when the bird is suspended by the feet. An employee then changes the bird so that it is suspended by the head when it reaches the second rougher. Where the equipment was in good working order an excellent rough picking job was being performed. Hand pickers could then complete the job rather easily and rapidly.

Although little poultry was bought from producers on grade, practically all of it was sold on grade. Most common selling grades were government grades A, B, and C. Two dealers sold on the basis of No. 1 and No. 2, in which cases No. 1 included the poultry packed by others in grades A and B. Anything below government grade B was sold as No. 2. A number of dealers indicated that there had been extensive upgrading during the wartime period of short supply.

Four of the 12 regional plants were eviscerating poultry. Another plant expects to start eviscerating soon. Along with those already eviscerating, several others indicated that "evisceration is not merely a wartime enterprise, but is here to stay." Evisceration was highly specialized, with a large number of employees performing their special task before the operation was completed. Government employed veterinarians inspected the health condition of the birds as they passed along the eviscerating line. There was not complete consistency in the rejections for T.B. In some plants whole carcasses were being rejected and in other plants only parts of the carcass, depending on the extent and location of the visible lesions.

Records on the time required to eviscerate poultry were obtained from three plants. This information is given in Table 4.

TABLE 4 OUTPUT PER WORKER IN EVISCERATING POULTRY

Association	Number of birds eviscerated - daily average	Number of workers	Birds eviscerated per worker - per day
D	6,500	56	116
F	8,000	50	160
G	5,000	45	111
Average - 3 plants	6,500	50	129

From the limited records available, as presented in Table 4, it can be observed that the evisceration of poultry is a more time-consuming operation than dressing (Table 3). An average of 199 birds was dressed daily per employee, while only 129 were eviscerated. In the plants that were eviscerating, the picking operations were coordinated with eviscerating operations by packing some of the birds as dressed (N.Y. dressed) while operating the evisceration equipment to capacity.

The operators of eviscerating plants agreed that the essentials of successful evisceration include thorough cleaning and washing of the birds following evisceration, rapid sharp freezing, and storage at low temperatures. Sharp freezing and storage temperatures varied considerably. One plant had a refrigerator temperature of -20° F. without special air circulation. Another carried a temperature of -30° F. with a "set-in" fan to circulate the air. A third plant carried a temperature of -40° F. with a built in and effective air blast system.

Only one of the 12 plants was canning chicken. This plant was equipped with a neat, clean, and well-ventilated canning room. All chicken was boned previous to canning. All canned chicken was being sold to the government, but the operators were hopeful and confident that a domestic outlet would be available for some canned chicken when government purchases would end. However, it was indicated that the expense involved would probably limit the volume of poultry that can be marketed in this form.

Turkeys - Nine out of 13 regional buyers handled turkeys, and three of those handled only about 250,000 pounds per year. The average for the nine plants was about 1½ million pounds per year. One buyer also reported handling about 1 million pounds of ducks and geese per year and another reported handling 150,000 pounds. Dealers in the areas where turkey, duck, and goose production is limited are reluctant to shift from the dressing of other poultry to the dressing of turkeys, ducks, and geese because rearrangement in equipment is required and there is loss in operating time.

Many more turkeys were bought on grade than chickens. If turkeys can be purchased from producers in this way, the question can be raised, why not chickens? One reason why turkeys are more readily bought on grade is that they are produced in larger, more commercialized flocks. The majority of turkeys were bought on government grades A, B, and C. Three bought on grades No. 1 and No. 2 but in turn sold on government grades.

PLANT OPERATIONS, PROGRAMS, AND MANAGEMENT

A comparison of numerous egg and poultry buying programs and processing operations allows observation of the difference in policy within the industry, as well as the difference between buyers in emphasis on certain phases of the business. Some problems are more prevalent in certain areas, and some managers believe certain methods of operation and types of equipment to be superior, while others appear to do fully as well with other methods and types. In general, there is considerable variation within the industry. Much of the success, and progress emanate from good management and personal factors within the organization; in some cases these factors appear to overshadow natural differences in the area. The four participants in the survey made a comparative A-B-C rating of the nine local and 13 regional plants, based on observations in the plant, discussions with management personnel, and the statistical information that was made available to them.

Local Buyers

No poultry was bought on grade, and no processing of either eggs or poultry (aside from oiling of eggs) was done at local buying points. For that reason local buyers were rated on only two factors; first on the effectiveness of their egg quality program, including grades used, educational work with producers, facilities to procure eggs, and the result in the quality of eggs received; and secondly on the general management of a local egg-buying operation. The ratings are presented in Table 5. (See page 11.)

Regional Buyers

Regional buyers were rated on a larger number of operations than local buyers. The items that were given a rating were as follows:

1. Shell egg quality program - purchase grades used, educational work with producers and personnel at the pickup stations, facilities to procure eggs, facilities at pickup stations and the central plant, and the result in the quality of eggs received.
2. Egg breaking operations - space, arrangement of equipment, sanitation, ventilation, working conditions, and employee relationships.
3. Poultry quality program - purchase grades used, educational work done, facilities for handling, grading for resale, and the result in the quality of poultry received.
4. Poultry feeding operations - space, light, construction, sanitation, and ventilation.

5. Poultry dressing and eviscerating operations - space, light, arrangement of equipment, sanitation, ventilation, working conditions, and employee relationships.

6. General management - coordination of various phases of the business, ability to harmonize employees, ability to meet current problems, and public relations.

TABLE 5. EFFICIENCY RATINGS OF LOCAL EGG AND POULTRY BUYERS

Association	Effectiveness of egg quality program	General management
1	B-	C-
2	B-	C+
3	B+	A
4	B	B+
5	A	A
6	A	A
7	C	B
8	A	A
9	A+	A+

The ratings of regional buyers are presented in Table 6.

TABLE 6. EFFICIENCY RATINGS OF REGIONAL EGG AND POULTRY BUYERS

Association	Shell egg quality program	Egg breaking operations	Poultry quality program	Poultry feeding operations	Poultry dressing operations	Poultry Eviscerating operations	General management
10	A	-	B	-	-	A	A
11	B	-	B	C	B	-	B-
12	B	-	B	B	B	-	B+
13	B-	-	B	B-	B	-	B-
14	B-	B-	B-	C+	B-	-	B
15	B+	B+	A-	A+	A-	A-	A
16	C+	-	B-	C	C-	-	B-
17	A	-	-	-	-	-	A
18	B+	A	B+	B+	A	A	B+
19	B-	B-	B	-	B+	A	C+
20	A	-	B+	A	A	-	A
21	A-	A-	B	A	A-	-	A
22	A-	A	B	A	A	-	A

SUMMARY

EGGS

1. The local buyers surveyed were in large part operating pickup stations for a regional buyer. The volume of eggs handled was only 260 cases per week, which is too small for effective carlot shipments, because the eggs cannot be moved out in carlots as frequently as desirable.

2. All but one local buyer purchased eggs on grade. The variety of ways in which wholesale grades have been projected out to local purchase points and the resulting confusion in local purchase grades indicate that for quality improvement and industry welfare purchase grades should be unified.

3. Approximately two thirds of the eggs reaching regional buyers are white eggs. The remaining one third includes brown and cream-colored eggs. There has been no discrimination against cream-colored eggs during the war, when a large supply of eggs was dried. This discrimination may again prevail when the supply of eggs is abundant compared to the prevailing demand.

4. All the regional buyers purchased eggs directly from producers at the central station along with those purchased at pickup stations. Regional buyers had an average of 13 pickup stations and handled 4,086 cases of eggs per week. The large volume handled permits some to ship out carloads of eggs daily, and others with less volume at least twice a week.

5. Most of the regional buyers had adequate refrigeration at the central plant. The lack of refrigeration at pickup stations constitutes a major problem. Eggs start "down" the road of quality before they are packed for final shipment.

6. Most of the regional buyers operated on "some kind" of a three-grade system. However, the three-grade system varied greatly between buyers. Because these grades in most instances also serve as local purchase grades they should be unified.

7. Two out of 13 regional plants have egg-drying equipment that may be largely obsolete in a peacetime economy. Six out of 13 were breaking and freezing eggs, which is expected to continue even when eggs move largely into domestic channels. At all but one regional plant eggs were oiled for the preservation of quality. It is expected that oiling will continue even for eggs moving into civilian domestic channels.

Chickens and Turkeys

1. Local buyers of poultry operated as a pickup station for regional buyers, had no facilities for dressing, and in turn resold the live poultry as soon as possible to avoid a shrinkage in weight.

2. No chickens were bought on grade by local buyers. A "no grade" purchase system provides no incentive for producers to improve the quality of the birds they produce.

3. Regional buyers also served as local buyers in the area around the central plant. The volume of poultry handled (not including turkeys) averaged 2½ million pounds per plant per year. Nine plants handling turkeys averaged 1½ million pounds per year, which was in addition to the other poultry handled.

4. Like the local buyers, regional buyers bought the large proportion of chickens on a "no grade" basis. Only three buyers bought on simple No. 1 and No. 2 grades. A large proportion of the chickens were sold on government grades. Turkeys were pretty largely bought on government grades and were sold on the same grades.

5. Twelve of the 13 regional plants were dressing poultry, four were eviscerating, and one was canning chicken. The output per worker in both dressing and eviscerating varied considerably between plants, owing to differences in size, type, and arrangement of equipment, management, personnel relationships, and the general efficiency of the plant.

General

Observation and comparison of numerous egg and poultry buying and processing operations indicate that there is a wide variation in operating policies and the effectiveness with which various phases of the business are carried out. Operators who are contemplating changes or expansion in operations, and especially new organizations, should carefully study the policies, programs, type of equipment, equipment arrangement, and coordination of the various phases of the business in other plants in order to achieve the highest degree of efficiency in their operations.